

WHAT IS CLAIMED IS:

1. An apparatus for compressing data, comprising:
a cell site element associated with a base
transceiver station and operable to receive a packet
5 communicated by a mobile station and to extract a high-
level data link control (HDLC) payload from the packet,
wherein the cell site element is further operable to
perform a compression process on the HDLC payload in
order to reduce a number of bytes associated with the
10 packet, the cell site element being further operable to
build a key that maps the HDLC payload associated with
the packet to the key, the key being broken into segments
that are positioned into a selected one or more of a
source internet protocol (IP) address field, a user
15 datagram protocol (UDP) source port field, and a UDP
destination port field of a UDP packet, the UDP packet
being sent to a routing functionality of the cell site
element such that it may be directed to a next
destination.

20

2. The apparatus of Claim 1, wherein the cell site
element is operable to construct the UDP packet, and
wherein remaining fields of the HDLC payload may be
copied and positioned into a payload field of the UDP
25 packet.

3. The apparatus of Claim 1, further comprising:
an aggregation node associated with a base station
controller and operable to receive a point to point
30 protocol (PPP) over HDLC packet that corresponds to the
UDP packet from the cell site element.

4. The apparatus of Claim 1, wherein the routing
functionality receives the UDP packet and selects an
outgoing interface to direct the packet, the outgoing
5 interface operable to add a layer-two encapsulation and
to perform a layer-two compression operation on the UDP
packet.

5. The apparatus of Claim 4, wherein the routing
10 functionality implements a compressed UDP (cUDP) and a
PPP multiplex protocol in order to compress the UDP
packet.

6. The apparatus of Claim 5, wherein the UDP
15 packet may be demultiplexed into one or more individual
cUDP packets.

7. The apparatus of Claim 6, further comprising:
a cUDP compressor operable to utilize one or more
20 context IDs in order to resolve them into a UDP/IP header
such that an original source IP field and original UDP
source and destination fields may be restored for a
reconstructed HDLC packet.

8. A method for compressing data, comprising:
receiving a packet communicated by a mobile station;
extracting a high-level data link control (HDLC)
payload from the packet;

5 performing a compression process on the HDLC payload
in order to reduce a number of bytes associated with the
packet;

building a key that maps the HDLC payload associated
with the packet to the key, the key being broken into
10 segments that are positioned into a selected one or more
of a source internet protocol (IP) address field, a user
datagram protocol (UDP) source port field, and a UDP
destination port field of a UDP packet; and

communicating the UDP packet to a routing
15 functionality such that it may be directed to a next
destination.

9. The method of Claim 8, further comprising:
constructing the UDP packet, wherein remaining
20 fields of the HDLC payload may be copied and positioned
into a payload field of the UDP packet.

10. The method of Claim 8, further comprising:
receiving a point to point protocol (PPP) over HDLC
25 packet that corresponds to the UDP packet.

11. The method of Claim 8, wherein the routing
functionality receives the UDP packet and selects an
outgoing interface to direct the packet, the outgoing
30 interface operable to add a layer-two encapsulation and
to perform a layer-two compression operation on the UDP
packet.

12. The method of Claim 8, further comprising:
implementing a compressed UDP (cUDP) and a PPP
multiplex protocol in order to compress the UDP packet.

5

13. The method of Claim 12, further comprising:
demultiplexing the UDP packet into one or more
individual cUDP packets.

10

14. The method of Claim 13, further comprising:
utilizing one or more context IDs in order to
resolve them into a UDP/IP header such that an original
source IP field and original UDP source and destination
fields may be restored for a reconstructed HDLC packet.

15. A system for compressing data, comprising:
means for receiving a packet communicated by a
mobile station;
means for extracting a high-level data link control
5 (HDLN) payload from the packet;
means for performing a compression process on the
HDLN payload in order to reduce a number of bytes
associated with the packet;
means for building a key that maps the HDLC payload
10 associated with the packet to the key, the key being
broken into segments that are positioned into a selected
one or more of a source internet protocol (IP) address
field, a user datagram protocol (UDP) source port field,
and a UDP destination port field of a UDP packet; and
15 means for communicating the UDP packet to a routing
functionality such that it may be directed to a next
destination.

16. The system of Claim 15, further comprising:
20 means for constructing the UDP packet, wherein
remaining fields of the HDLC payload may be copied and
positioned into a payload field of the UDP packet.

17. The system of Claim 15, further comprising:
25 means for receiving a point to point protocol (PPP)
over HDLC packet that corresponds to the UDP packet.

18. The system of Claim 15, wherein the routing
functionality receives the UDP packet and selects an
outgoing interface to direct the packet, the outgoing
5 interface operable to add a layer-two encapsulation and
to perform a layer-two compression operation on the UDP
packet.

19. The system of Claim 15, further comprising:
10 means for implementing a compressed UDP (cUDP) and a
PPP multiplex protocol in order to compress the UDP
packet.

20. The system of Claim 19, further comprising:
15 means for demultiplexing the UDP packet into one or
more individual cUDP packets.

21. The system of Claim 20, further comprising:
means for utilizing one or more context IDs in order
20 to resolve them into a UDP/IP header such that an
original source IP field and original UDP source and
destination fields may be restored for a reconstructed
HDLC packet.

22. Software for compressing data, the software being embodied in a computer readable medium and comprising code such that when executed is operable to:

5 receive a packet communicated by a mobile station;
 extract a high-level data link control (HDLC) payload from the packet;

 perform a compression process on the HDLC payload in order to reduce a number of bytes associated with the packet;

10 build a key that maps the HDLC payload associated with the packet to the key, the key being broken into segments that are positioned into a selected one or more of a source internet protocol (IP) address field, a user datagram protocol (UDP) source port field, and a UDP
15 destination port field of a UDP packet; and

 communicate the UDP packet to a routing functionality such that it may be directed to a next destination.

20 23. The medium of Claim 22, wherein the code is further operable to:

 construct the UDP packet, wherein remaining fields of the HDLC payload may be copied and positioned into a payload field of the UDP packet.

25

 24. The medium of Claim 22, wherein the code is further operable to:

 receive a point to point protocol (PPP) over HDLC packet that corresponds to the UDP packet.

25. The medium of Claim 22, wherein the routing
functionality receives the UDP packet and selects an
outgoing interface to direct the packet, the outgoing
5 interface operable to add a layer-two encapsulation and
to perform a layer-two compression operation on the UDP
packet.

26. The medium of Claim 22, wherein the code is
10 further operable to:

implement a compressed UDP (cUDP) and a PPP
multiplex protocol in order to compress the UDP packet.

27. The medium of Claim 22, wherein the code is
15 further operable to:

demultiplex the UDP packet into one or more
individual cUDP packets.

28. The medium of Claim 22, wherein the code is
20 further operable to:

utilize one or more context IDs in order to resolve
them into a UDP/IP header such that an original source IP
field and original UDP source and destination fields may
be restored for a reconstructed HDLC packet.